Utility Supply Chain Management
The New Agenda
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UTILITY SUPPLY CHAIN MANAGEMENT

The New Agenda

The supply chain agenda at leading utilities has changed substantially in recent years. The original focus on cost savings and organizational efficiency has evolved, with increases in activity across all utility sectors, to include the challenges of cost containment, supply assurance, and risk management. At many utilities, however, the strategic role of supply chain management has not kept pace with these new challenges. For these utilities, the situation requires an overhaul of the supply chain’s role and a redesign of the supporting operating model (encompassing processes, organization, technology, and performance management).

Supply Chain’s Old Agenda: Cost Reduction and Efficiency

Supply chain management (SCM) in utilities has evolved significantly over the past 20 years. In the 1980s, and for many years before that, the purchasing department served largely as clerical support for the business units. Its primary function was to send purchase orders to suppliers, based on requisitions received from other departments—which, in many cases, had already selected the supplier and negotiated the price. Purchasing would also follow up on the orders and make sure that the proper paperwork was completed. In addition, the purchasing department was occasionally involved in administering contracts, and it kept track of supplier contact information.

As the utilities sector entered the 1990s, looming deregulation and increased scrutiny from regulators heightened utilities’ focus on cost management. This shift led to a proliferation of strategic sourcing programs designed to reduce the costs of procured materials and services. Utilities organized cross-functional commodity teams to pursue more effective supplier strategies, reducing the number of suppliers on many commodities so that companies could build stronger relationships with fewer, more critical suppliers. Utilities signed long-term corporate contracts for many spending categories, which reshaped the competitive landscape as weaker suppliers lost business and consolidated.

Later in the 1990s, with the Y2K upgrades and the dot-com boom, new technologies promised
to revolutionize purchasing: enterprise-wide systems, Web-based exchanges such as Enporion and Pantellos, reverse auctions, e-sourcing, and other online transactional programs. Along the way, utilities’ purchasing departments evolved into today’s supply chain management function.

Many companies claimed huge savings as a result of such initiatives. The initial strategic sourcing efforts yielded cost cuts averaging 10 to 15 percent. Furthermore, reverse auctioneers touted savings of as much as 35 percent on a variety of spending categories. SCM’s strategic role as an arbiter of cost reduction was firmly established in utilities.

SCM’s function in reducing costs and increasing efficiency was further cemented during the post-Enron years, when energy companies focused on getting back to basics. Operations and maintenance (O&M) budgets in the industry were trimmed and capital spending was restrained, which reinforced SCM’s role in negotiating with suppliers on lower prices to help stretch what could be done with limited funds.

Supply chain organizations designed their operating models to reinforce their objectives regarding cost reduction and efficiency. For example, annual supplier negotiations were conducted by people schooled in “putting the vendor in his place” by asserting that the utility’s cost reduction targets must be met “or else.” Organizations and processes were streamlined to process a routine flow of requisitions and orders. Systems investments were focused mainly on further streamlining and reducing the costs of these transactional activities.

Unfortunately, the reduction in overall activity and cost focus also led to staff reductions in many utility SCM organizations, resulting in the loss of experienced resources. These people are now sorely missed as SCM organizations try to keep pace with the ramp-up in spending over the last few years.

**New Items on the Agenda—Containing Costs, Assuring Supply, and Managing Risk**

Changes in the industry underscore the need for changes in the supply chain function. All utility sectors are seeing increased activity in the form of fossil environmental projects, nuclear restart programs, transmission line extensions, and distribution grid reliability spending. As a result, suppliers are no longer forming lines outside the supply chain vice president’s office: Rather, business unit managers and engineers are chasing suppliers and contractors for access. The sheer volume of tactical work—requests for proposals (RFPs), purchase orders (POs), and contracts—generated by this new activity is stretching supply chain organizations’ resources. Simply adding staff to meet the workload is not an easy option. Hiring is a challenge; qualified supply chain professionals are in demand across multiple industries, particularly utilities and oil and gas.

Today’s SCM organization in utilities is struggling to demonstrate value in its old role of cost reduction and efficiency. Because of the changed dynamics of the supply market, the supply chain function can no longer boast of big annual savings, and the function is challenged to maintain service to the business because the reduced staff can’t keep up with the resurgence in workload. As a result of the earlier focus on efficiency, utility executives and business line leaders often still view the supply chain organization’s role as being focused on negotiating prices and processing transactions. These executives do not readily see a role for SCM in addressing the current strategic challenges of commodity cost containment, supply assurance, and risk management.

This narrow perception of SCM and the resources required to keep up with the workload make it difficult to redefine SCM’s role, but industry leaders are starting to break out of the cost and transaction focus and into addressing the more strategic challenges mentioned above.

Certainly, reducing costs and increasing efficiency should always be part of SCM’s role. However, to be relevant today, the supply chain organization must effectively take on new strategic roles in cost containment, supply assurance, and risk management.

**Cost containment** needs to be broadly defined to ensure that SCM explores multiple options to help manage costs. When the old cost-reduction agenda was paramount, many relevant commodity prices were actually deflating relative to gross domestic product (GDP), so real cost reductions from rebidding and hard-nosed negotiations with suppliers were possible. However, as most utilities have painfully learned, these costs—and those for labor—are now increasing much faster than underlying inflation (see Exhibit 1).
When cost containment is narrowly defined, efforts address only purchase prices, with SCM negotiating to minimize price increases. Instead, the supply chain function should be taking a lead role on broader opportunities: The SCM organization should be working proactively with suppliers to identify alternative products and services that could satisfy the utility’s functional needs, but perhaps at a lower cost. This requires the SCM team to really understand the functional requirements and the total cost of ownership (TCO) for materials and services they are buying, and to work with suppliers and business unit leaders to develop strategies and plans to reduce these costs.

For example, utilities are concerned with increases in contractors’ costs, which have been driven largely by the growth in wages required to attract and retain the contractors’ workforce. Negotiations with contractors to get them to lower their margins in order to contain costs might have worked a few years ago, but with the current cross-industry demand, contractors can often earn higher rates elsewhere. Tough purchasing tactics might drive away preferred contractors.

By understanding contractors’ cost structure, utilities can gain a better sense for where there might be opportunities to help the contractors reduce costs to the utility without lowering their margins. As shown in Exhibit 2, contractor costs have several

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**Exhibit 1**
*Indexed Commodity and Labor Prices*

![Graph showing Indexed Commodity and Labor Prices](image)

Source: Booz & Company

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**Exhibit 2**
*Contractor Cost Components and Drivers*

<table>
<thead>
<tr>
<th>Contractor Cost Structure</th>
<th>Key Cost Drivers</th>
<th>Line Contractor Productive versus Non-Productive Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td></td>
<td>Available Hours</td>
</tr>
<tr>
<td>0−7%</td>
<td>Profit</td>
<td>0.6% Rain &amp; Vehicle Breakdowns</td>
</tr>
<tr>
<td>4 − 7%</td>
<td>Administrative Overhead</td>
<td>7.1% Breaks &amp; Meetings</td>
</tr>
<tr>
<td>4−8%</td>
<td>Travel</td>
<td>7.4% Start &amp; Clean-Up</td>
</tr>
<tr>
<td>4−5%</td>
<td>Consumables</td>
<td>13.7% Holidays, Absences &amp; Other</td>
</tr>
<tr>
<td>20−28%</td>
<td>Equipment</td>
<td>13.6% Travel</td>
</tr>
<tr>
<td>20−25%</td>
<td>Direct Labor Fringes &amp; Insurance</td>
<td>55.0% Productive Hours</td>
</tr>
<tr>
<td>30−35%</td>
<td>Direct Labor</td>
<td></td>
</tr>
</tbody>
</table>

Source: Booz & Company
components with different underlying drivers. This insight will enable the utility to have constructive conversations with contractors about potential ways to work together to reduce those costs. For example, many of the contractor costs charged to the utility are driven by utilization of the contractor crews and trucks. By working with one of the major line contractors, one utility was able to identify the amount of nonproductive time (as shown on the right side of Exhibit 2). Using this knowledge, the utility worked more closely with the contractor to better plan and schedule its workload, which enabled the contractor to become more productive and contain total costs required to complete the workload.

Supply assurance is now another major challenge for utilities. With the increase in workload across the utility sector (as well as in the related oil and gas sector), contractors and suppliers have full order books and are, in many cases, struggling to keep up with demand. These suppliers are also challenged by worsening scarcity and increased costs for their key inputs, particularly commodity metals and skilled labor. Therefore, SCM teams need to develop two crucial capabilities to effectively manage the supply risk involving key materials and services. First is an integrated view of future demand for the major categories of materials and services spending. This sounds simple, but most utilities do not have good integration between capital and O&M planning and the implications for materials and services needs. Therefore, the SCM organization is often caught short when the utility launches a specific project that requires a large volume of materials (e.g., transmission line extensions), or when a large contractor force is required. The challenge for utilities is to develop a process to take capital and O&M budget projections and convert those to a materials/services requirements plan for the future (see Exhibit 3). Once the SCM organization has developed this forward view of spending by category, it can create proactive strategies to assure the availability of a quality supply of materials and services.

Exhibit 3
Translating Project Demand to Materials/Service Needs

Simplified Client Example

Traditional Demand Profile

Demand Across Projects

Source: Booz & Company
The second capability required to manage supply assurance is a deep understanding of the supply markets outlook—both regionally and, more and more, globally. SCM professionals in utilities need to have a view of current and future demand and supply of their direct suppliers’ industry sectors, and a similar view of the key inputs on which utility suppliers rely, such as steel and craft labor. This capability requires SCM professionals to analyze much more data than their experience generally accommodates, so it is often necessary to add more analytical resources as well as to offer additional training for existing personnel.

Risk management is the third aspect of the new supply chain agenda for utilities, particularly risks concerning “owners’ rights” in major projects. Many utilities are now working on major capital projects in generation, transmission, and/or distribution. They are concerned about different sources of risk and their potential impact on the projects. However, most utilities’ skills and capacity to manage these projects themselves have eroded over the years, owing to the lack of large projects and the aging demographics of the workforce. This has led to potential overreliance on engineering, procurement, and construction (EPC) firms to take on and manage the risk in the projects. In fact, EPC firms today have little incentive, and possibly limited capacity, to proactively manage these risks on behalf of the owner. The EPC firms are enjoying peak workloads and experiencing backlogs not seen in years due to the increase in spending from oil and gas and utility projects. This business soundness has made them less interested in taking on risk—for example, in the area of price escalation for major materials and services—and the EPC firms are passing this risk on to the owners rather than committing to fixed-price or even index-based escalation clauses.

As a result, owners are now revisiting the capabilities they must have in order to be successful in managing projects. A recent Booz & Company survey identified the top success factors and required capabilities for major project risk management cited by respondents (see Exhibit 4). First among these was a high degree of owner involvement.

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Exhibit 4
Key Success Factors and Owner Capabilities

<table>
<thead>
<tr>
<th>Success Factor/Capability</th>
<th>Percent Owners Identifying Success Factor/Capability¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Degree of Owner Involvement</td>
<td>50%</td>
</tr>
<tr>
<td>Better Partnering and Relationship-Building with EPC</td>
<td>40%</td>
</tr>
<tr>
<td>Front-Loading</td>
<td>30%</td>
</tr>
<tr>
<td>Thorough Risk Identification and Clear Allocation</td>
<td>20%</td>
</tr>
<tr>
<td>Effective Project Management</td>
<td>20%</td>
</tr>
<tr>
<td>Break-Up of Large Contacts into Smaller Parts</td>
<td>20%</td>
</tr>
<tr>
<td>Clear Stakeholder Communication</td>
<td>20%</td>
</tr>
<tr>
<td>Clearly Defined Contractual Responsibilities</td>
<td>10%</td>
</tr>
<tr>
<td>Open Book Policy</td>
<td>0%</td>
</tr>
</tbody>
</table>

¹Shows percent interviewees who mentioned specific owners’ rights during interview.
Source: External interviews, research documents, Booz & Company
Creating the Right SCM Operating Model for the New Agenda

What are the practical implications of the new SCM agenda for utilities? In order to identify the specific areas where utilities must focus, it is useful to revisit the supply chain operating model (see Exhibit 5). The operating model is, of course, driven by its agenda and objectives—i.e., its mission. That mission should be the foremost consideration in determining the processes, organization, and technology used by the supply chain organization. Finally, the model must be supported by a rigorous approach to performance management, with metrics that evaluate how successfully the processes, organization, and technology are supporting the supply chain function’s agenda. If the SCM operating model is consistent with the old agenda of cost reduction and efficiency, it will need modifications to adapt to the new agenda of cost containment, supply assurance, and risk management.

Certain specific elements of the operating model will have the greatest impact in helping the SCM organization achieve its new objectives. Take processes, for example: A few years ago, utilities focused mainly on improving the efficiency of their tactical and procure-to-pay (P2P) processes (see Exhibit 6). This approach made sense during a time when there were minimal major projects, fairly constant O&M, and a stable supply base. Given the new agenda, however, utilities need to refocus on their strategic SCM processes. This includes working with the business units and planning to translate the capital plan and transmission and distribution (T&D) system plan into future materials and services requirements so that there is a clear view of future demand segmented into the major categories of spending. From there, utilities need to develop thorough category strategies for key spending areas (e.g., engineering and construction).

These thorough spending category strategies need to go well beyond basic cost modeling and supply market surveys. Utilities’ cost understanding needs to extend into their suppliers’ cost structures so they can get a better understanding of the nature and magnitude of total potential cost and supply risks. For example, even for simple products like distribution transformers, more than 60 percent of the costs are commodity inputs to the manufacturer (see Exhibit 7). With the run-up in major projects and cross-sector impacts, these inputs are likely to continue to generate cost challenges and supply concerns. This simple example gets compounded quickly in major capital projects, with multiple materials commodities and labor categories, each with their respective cost pressures and supply constraints.

In addition to refocusing on processes, utilities may need to enhance their approach to managing the organization to implement the new agenda. For example, with the resurgence of major projects and the need to manage EPC firms, many SCM organizations need to hire or rotate in people with hands-on experience in engineering and major projects, and may even need to set up a

Exhibit 5

Utility Supply Chain Operating Model
small, separate organization within SCM to tackle major projects. The analytical skills of risk assessment are another area commonly requiring enhancement.

Selected technology upgrades may also be necessary to provide the right data and tools to support the revisions to processes and new skill sets.

Finally, SCM performance metrics should be readdressed to ensure they cover key elements of the new agenda. For example, utilities may want to measure the percentage of projected materials and services covered by contracts, as well as dollars of future spending with contingency plans.
Developing the Road Map
Retooling the SCM operating model for the new agenda will likely require multiple changes that cannot be done overnight. Utilities need to develop an overall road map to guide the transition based on the business priorities, logical sequencing, and ability to enhance capabilities quickly. In parallel, the SCM organization needs to reallocate or supplement resources to fast-track critical spending categories, such as impending environmental projects, that cannot wait for all the changes to be made (see Exhibit 8). If they haven’t done so already, utilities must change the mission of the supply chain function from the old agenda of cost and efficiency to the new agenda of cost containment, supply assurance, and risk management. Utility executives need to understand the potential value of such a shift and provide the support needed to make these fundamental changes.

Exhibit 8
Utility Supply Chain—Roadmap for the New Agenda

Source: Booz & Company
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